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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/024,019	12/21/2001	Thomas P. Loughran JR.	USF-T154X	4345

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EXAMINER	
LOCKARD, JON MCCLELLAND	
ART UNIT	**PAPER NUMBER**
1647	

DATE MAILED: 06/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/024,019	LOUGHRAN ET AL.	
	Examiner	Art Unit	
	Jon M. Lockard	1647	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 March 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4,6,7,9 and 11-19* is/are pending in the application.

4a) Of the above claim(s) *6,7,9,18 and 19* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *2-4,11 and 14-17* is/are rejected.

7)☒ Claim(s) *1,12 and 13* is/are objected to.

8)☐ Claim(s) *1-4,6,7,9 and 11-19* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *06 May 2002* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *5/6/02, 6/26/03*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☒ Other: *Sequence Alignments*.

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group I, claims 1-4 and 11-17, polynucleotides of SEQ ID NO:4 and vectors and host cells comprising the same, and a method of recombinantly producing a polypeptide encoded by SEQ ID NO:4 in the reply filed on 24 March 2005 is acknowledged. Because Applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP §818.03(a)).

2. Claims 6-7, 9, 18-19 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 15 March 2005.

3. The restriction requirement is still deemed proper and is therefore made FINAL.

Status of Application, Amendments, and/or Claims

4. The Response to the Restriction Requirement filed on 15 March 2005 has been entered in full. Claims 2-3 have been amended, claims 5, 8, 10, and 20 are cancelled, and claims 6-7, 9, 18-19 are withdrawn from further consideration as discussed above. Therefore, claims 1-4 and 11-17 are the subject of this Office Action.

Information Disclosure Statement

5. The information disclosure statements (IDS), filed 6 May 2002 and 26 June 2003, have been considered by the Examiner.

Drawings

6. New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because the "handwritten" Figures 8-13 are also labeled as Figures 2-7. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

7. The drawings are further objected to under 37 C.F.R. 1.821(d) because "handwritten Figures 8-9 and 12 disclose nucleotide and/or amino acid sequences without the accompanying SEQ ID NO:. The SEQ ID NO: may be inserted into the Figure or the Brief Description of the Drawings. A proposed drawing correction or corrected drawings are required in reply to the Office Action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Objections

8. Claims 1-4 and 11-17 are objected to because of the following informalities: Claim 1, from which claims 11-13 depend, claim 2, from which claims 14-17 depend, and claims 3-4, encompasses non-elected inventions, e.g., SEQ ID NO:9 and SEQ ID NO:13. Appropriate correction is suggested.

Claim Rejections - 35 USC § 101 and 35 USC §112, 1st Paragraph

9. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.
>
> The following is a quotation of the first paragraph of 35 U.S.C. 112:
>
> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

10. Claims 4, 11, 14-16 are rejected under 35 U.S.C. 101 because the claimed invention is not supported by either a specific, substantial, and credible asserted utility or a well established utility. Novel biological molecules lack an established utility and must undergo extensive experimentation to determine an appropriate specific, substantial, and credible utility.

11. Specifically, claim 4 is directed to a nucleic acid that hybridizes to a portion of the nucleic acid of SEQ ID NO:4; claim 11 is directed to a method of producing a recombinant SPPR protein; claim 14 is directed to RNA comprising a sequence of more than 100 base pairs that is, or is complementary to, at least 100 bases of SEQ ID NO:4; claim 15 is directed to a mRNA comprising a sequence of more than 100 base pairs that is, or is complementary to, at least 100 bases of SEQ ID NO:4; and claim 16 is directed to an antisense nucleic acid molecule complementary to an mRNA comprising a sequence of more than 100 base pairs that is, or is complementary to, at least 100 bases of SEQ ID NO:4, or a fragment thereof.

12. The instant application discloses an isolated human sphingosine 1-phosphate receptor (SPPR) DNA sequence set forth as SEQ ID NO:4 that would at least have utility as a probe for the diagnosis of large granular lymphocyte leukemia (LGL). However, the instant specification does not teach any significance or functional characteristics of the SPPR polypeptide (SEQ ID NO:3). The specification also does not disclose any methods or working examples that indicate the claimed polynucleotides and encoded polypeptide of the instant invention are involved in any activity. There is no biological activity, phenotype, ligand, binding partner, or any other specific feature that is disclosed as being associated with the encoded SPPR protein of SEQ ID NO:3. Without any information as to the specific properties of the encoded SPPR protein of SEQ ID NO:3, the mere identification of the polypeptide is not sufficient to impart any particular utility

to the polypeptides encoded by the claimed nucleic acid molecules or produced by the claimed methods. Since significant further research would be required of the skilled artisan to determine how the polypeptide encoded by the claimed nucleic acid molecules are involved in any activities, the asserted utilities are not substantial. Since the asserted utility is not present in a ready to use, real-world application, the asserted utility is not substantial. The specification asserts the following as utilities for the claimed nucleic acid molecules and putative polypeptide (SEQ ID NO:3) encoded by the claimed nucleic acid molecules or produced by the claimed methods:

> 1) the SPPR polypeptide can be used to screen ligands, agonists, and antagonists of SPPR (pg 3, lines 3-4);
>
> 2) the SPPR gene can be used to produce SPPR protein, which can be used in developing therapeutic agents for various diseases (pg 3, lines 8-10);
>
> 3) the SPPR protein can be used in elucidating the mechanisms of immunosuppression in living bodies (pg 7, line 23);
>
> 4) the SPPR protein can be used in developing or screening therapeutic agents for autoimmune diseases, such as rheumatism, systemic lupus erythematodes, and LGL, for example (pg 7, lines 24-25); and
>
> 5) the SPPR gene can be used in elucidating the mechanisms of neurodegeneration in living bodies, developing or screening out therapeutic agents for neurodegenerative diseases, searching for endogenous ligands and substrates to the novel protein, and developing therapeutic agents therefore (pg 7, lines 27-31.
>
> Each of these shall be addressed in turn.

1) to screen for ligands, agonists, and antagonists. This asserted utility is not specific or substantial. Since such assays can be performed with any polypeptide, the asserted utility is not specific to the SPPR polypeptide encoded by the claimed nucleic acid molecules. Additionally, the specification discloses nothing specific or substantial for the proteins or other binding

partners that can be identified by this method. This would constitute further research to determine the properties of the polypeptide, which clearly is of the type of experimentation that does not meet the requirements of 35 USC § 101.

2) to produce a SPPR polypeptide. This asserted utility is not specific or substantial. Since the same assays can be performed with any polypeptide, the asserted utility is not specific to the SPPR polypeptide encoded by the claimed nucleic acid molecules. Furthermore, the specification does not disclose any disorders that are associated with altered levels or forms of the SPPR polypeptide. Since the asserted utility is not presented in a ready to use, real-world application, the asserted utility is not substantial.

3) elucidating the mechanisms of immunosuppression. This asserted utility is not specific or substantial. The specification does not disclose any disorders that are associated with altered levels or forms of the SPPR polypeptide. Since the asserted utility is not presented in a ready to use, real-world application, the asserted utility is not substantial.

4) developing or screening therapeutic agents for autoimmune diseases. This asserted utility is not specific or substantial. Since such assays can be performed with any polypeptide, the asserted utility is not specific to the SPPR polypeptide encoded by the claimed nucleic acid molecules. Additionally, the specification discloses nothing specific or substantial for the agents that can be identified by this method. This would constitute further research to determine the properties of the polypeptide, which clearly is of the type of experimentation that does not meet the requirements of 35 USC § 101.

5) elucidating the mechanisms of neurodegeneration in living bodies, developing or screening out therapeutic agents for neurodegenerative diseases, searching for endogenous

ligands and substrates to the novel protein, and developing therapeutic agents therefore. This asserted utility is not specific or substantial. The specification does not disclose any disorders that are associated with altered levels or forms of the SPPR polypeptide. Furthermore, since such assays can be performed with any polypeptide, the asserted utility is not specific to the SPPR polypeptide encoded by the claimed nucleic acid molecules. Additionally, the specification discloses nothing specific or substantial for the agents that can be identified by this method. This would constitute further research to determine the properties of the polypeptide, which clearly is of the type of experimentation that does not meet the requirements of 35 USC § 101.

13. The specification teaches that the results from the microarray analysis using mRNA isolated from peripheral blood mononuclear cells (PBMCs) from LGL leukemia patients and mRNA from normal individuals demonstrate that SPPR is overexpressed in LGL leukemia patients ((See pg 2, lines 11-14; pg 3, lines 15-23). The specification also teaches that the results from the microarray analysis were confirmed with Northern blot analysis using RNA isolated from PBMCs of LGL leukemia patients and normal individuals (See pg 5, lines 22-28). However, even though the data have clearly demonstrated upregulation of SPPR mRNA in LGL leukemia, such would not be indicative of a use of the SPPR polypeptide encoded by the claimed nucleic acid molecules or a use of the claimed nucleic acid molecules for the targeted disruption of the encoded polypeptide. The preliminary data were not supported by analysis of protein expression. More importantly, the art teaches that it does not necessarily follow that an increase in DNA or mRNA copy number results in increased polypeptide expression, such that the SPPR

polypeptide would be useful as a drug target to treat autoimmune or neurodegenerative disorders. For example, as discussed by Haynes et al (1998, Electrophoresis, 19: 1862-1871), polypeptide levels cannot be accurately predicted from mRNA levels, and that, according to their results, the ratio varies from zero to 50-fold (page 1863). The literature cautions researchers against drawing conclusions based on small changes in transcript expression levels between normal and cancerous tissue. For example, Hu et al. (Journal of Proteome Research 2: 405-412, 2003) analyzed 2286 genes that showed a greater than 1-fold difference in mean expression level between breast cancer samples and normal samples in a microarray (pg 408, middle of right column). Hu et al. discovered that, for genes displaying a 5-fold change or less in tumors compared to normal, there was no evidence of a correlation between altered gene expression and a known role in the disease. However, among genes with a 10-fold or more change in expression level, there was a strong and significant correlation between expression level and a published role in the disease (see discussion section). Similarly, Chen et al. (2002, Molecular and Cellular Proteomics 1: 304-313) disclose that twenty-eight of the 165 protein blots (17%) or 21 of 98 genes (21.4%) had a statistically significant correlation between protein and mRNA expression (see Abstract and Table I). In addition, their results showed that no significant correlation between mRNA and protein expression was found (r= -0.025), if the average levels of mRNA or protein among all samples were applied across the 165 protein blots (98 genes). The reference also teaches that the mRNA/protein correlation coefficient varied among proteins with multiple isoforms, indicating potentially separate isoform-specific mechanisms for the regulation of protein abundance. In this study using a quantitative analysis of mRNA and protein expression within the same lung adenocarcinomas, it is showed that only a minority subset of the proteins

exhibited a significant positive correlation with mRNA abundance. Therefore, data pertaining to SPPR nucleic acids do not necessarily indicate anything significant regarding the SPPR polypeptides. Thus, the data do not support the implicit assertion that compounds that modulate the activity of the SPPR polypeptide can be used to treat autoimmune or neurodegenerative disorders, and the art indicates that it is not the norm that gene amplification, or even increased transcription, results in increased protein levels. Since the SPPR polypeptides do not have a specific, substantial, or well-established utility, the methods of producing the SPPR polypeptide have no utility, and the claimed nucleic acid molecules, which the Examiner has interpreted as compounds having the sole intended use in either producing the SPPR polypeptide (RNA and mRNA) or targeted disruption of the SPPR polypeptide (antisense).

14. Thus, the identification that SPPR mRNA is overexpressed in LGL leukemia would not be accepted by those of skill in the art as being predictive of the function of the SPPR polypeptide. Utility must be in readily available form. It is possible that, after further characterization, this protein might be found to have a patentable utility, in which case proteins would have a specific utility, or the protein might be found to be associated with a specific disease. This further characterization, however, is part of the act of the invention, and until it has been undertaken, Applicant's claimed invention is incomplete. Because the instant specification has failed to identify a physiological process which has been shown to be influenced by the activation or inhibition of the SPPR protein of the instant invention, an artisan would have no way of predicting what effects the administration of an agent which modulates its activity would have. If one cannot predict the effects that the administration of a ligand of the SPPR protein of

the instant invention is going to have on an organism, then it is unclear as to what practical or real-world benefit is derived by the public from the identification of that ligand.

15. The instant situation is directly analogous to that which was addressed in *Brenner v. Manson*, 148 U.S.P.Q. 689 (Sup. Ct., 1966), in which a novel compound that was structurally analogous to other compounds which were known to possess anti-cancer activity was alleged to be useful because the compound produced thereby was potentially useful as an anti-tumor agent in the absence of evidence supporting this utility. The court expressed the opinion that all chemical compounds are "useful" to the chemical arts when this term is given its broadest interpretation. However, the court held that this broad interpretation was not the intended definition of "useful" as it appears in 35 U.S.C. § 101, which requires that an invention must have either an immediately obvious or fully disclosed "real world" utility. The court held that:

> "The basic quid pro quo contemplated by the Constitution and the Congress for granting a patent monopoly is the benefit derived by the public from an invention with substantial utility", "[u]nless and until a process is refined and developed to this point-where specific benefit exists in currently available form-there is insufficient justification for permitting an applicant to engross what may prove to be a broad field", and "a patent is not a hunting license", "[i]t is not a reward for the search, but compensation for its successful conclusion."

The instant claims are drawn to nucleic acid molecules which either encode or cause targeted disruption of a protein which has undetermined function or biological significance. There is no evidence of record that would support a conclusion that compounds that modulate the activity of the protein of the instant invention would be useful for treating autoimmune or neurodegenerative disorders. Until some actual and specific activity or significance can be attributed to the protein identified in the specification as SPPR (SEQ ID NO:3), the claimed invention is incomplete. Furthermore, to employ a protein of the instant invention in the

identification of substances which stimulate or inhibit its activity is clearly to use it as the object of further research, which has been determined by the courts to be a utility which, alone, does not support patentability.

16. Claims 4, 11, 14-16 are also rejected under 35 U.S.C. 112, first paragraph. Specifically, since the claimed invention is not supported by either a specific, substantial and credible asserted utility or a well established utility for the reasons set forth above, one skilled in the art clearly would not know how to make/use the claimed invention.

17. However, even if the claimed invention is eventually deemed to have a credible, specific and substantial asserted utility or a well established utility, claim 4 would remain rejected under 35 U.S.C. § 112, first paragraph because claim 4 encompasses variants of SEQ ID NO:4 as well as completely unrelated, both structurally and functionally, polynucleotides. However, the specification does not teach any variant, fragment, or derivative of the SPPR nucleic acid other than the full-length nucleic acid sequence of SEQ ID NO:4, nor does it teach polynucleotides which hybridize to SEQ ID NO:4 and encode the polypeptide of SEQ ID NO:3. The specification also does not teach functional or structural characteristics of the nucleic acid variants, fragments, derivatives, as well as completely unrelated polynucleotides which are encompassed the claim.

18. Due to the large quantity of experimentation necessary to generate the infinite number of derivatives recited in the claim and the breadth of the claims which fail to recite any structural or

functional limitations, undue experimentation would be required of the skilled artisan to make and/or use the claimed invention in its full scope.

19. Claim 4 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

20. The claim is directed to a purified nucleic acid that hybridizes to a portion of the nucleic acid of SEQ ID NO:4. The claim does not require that the nucleic acid possess any particular biological activity, nor any particular conserved structure, or other disclosed distinguishing feature. Thus, the claim is drawn to a genus of nucleic acids that is defined only by hybridization.

21. To provide adequate written description and evidence of possession of a claimed genus, the specification must provide sufficient distinguishing identifying characteristics of the genus. The factors to be considered include disclosure of compete or partial structure, physical and/or chemical properties, functional characteristics, structure/function correlation, methods of making the claimed product, or any combination thereof. In this case, the only factor present in the claims is a partial structure in the form of a recitation of hybridization. There is not even identification of any particular portion of the structure that must be conserved. Accordingly, in the absence of sufficient recitation of distinguishing identifying characteristics, the specification does not provide adequate written description of the claimed genus. Additionally, the description of one polynucleotide species (SEQ ID NO: 4) is not adequate written description of

an entire genus of functionally equivalent polynucleotides which incorporate all variants and fragments that hybridize to a nucleic acid comprising the sequence of SEQ ID NO: 4.

22. *Vas-Cath Inc. v. Mahurkar*, 19USPQ2d 1111, clearly states that "applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession *of the invention*. The invention is, for purposes of the 'written description' inquiry, *whatever is now claimed"* (See page 1117). The specification does not "clearly allow persons of ordinary skill in the art to recognize that [he or she] invented what is claimed" (See *Vas-Cath* at page 1116).

23. With the exception of the sequence referred to above, the skilled artisan cannot envision the detailed chemical structure of the encompassed polynucleotides, and therefore conception is not achieved until reduction to practice has occurred, regardless of the complexity or simplicity of the method of isolation. Adequate written description requires more than a mere statement that it is part of the invention and reference to a potential method of isolating it. The nucleic acid itself is required. See *Fiers v. Revel*, 25 USPQ2d 1601 at 1606 (CAFC 1993) and *Amgen Inc. v. Chugai Pharmaceutical Co. Ltd.*, 18 USPQ2d 1016.

24. One cannot describe what one has not conceived. See *Fiddes v. Baird*, 30 USPQ2d 1481 at 1483. In *Fiddes*, claims directed to mammalian FGF's were found to be unpatentable due to lack of written description for that broad class. The specification provided only the bovine sequence.

25. Therefore, only an isolated nucleic acid consisting of the sequence of SEQ ID NO:4, but not the full breadth of the claim meets the written description provision of 35 U.S.C. §112, first

paragraph. Applicant is reminded that *Vas-Cath* makes clear that the written description provision of 35 U.S.C. §112 is severable from its enablement provision (see page 1115).

Claim Rejections - 35 USC § 112, 2nd paragraph

26. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

27. Claims 3 and 16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

28. Claim 3 is rejected as being indefinite because it recites the term "genetic construct". Since neither the art nor the specification provides an unambiguous definition of the term, the metes and bounds of the claim cannot be determined.

29. Claim 16 is rejected as being indefinite because it is unclear if "a fragment thereof" recited in line 2 of the claim refers to a fragment of the antisense nucleic acid or a fragment of the mRNA.

Claim Rejections - 35 USC § 102

30. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

31. Claims 2-4 and 14-17 rejected under 35 U.S.C. 102(e) as being anticipated by Lal et al. (US 2003/0119111 A1; published 26 June 2003).

32. Lal et al. teach an isolated nucleic acid (SEQ ID NO:26) that shares 87% sequence identity to SEQ ID NO:4 of the instant application (See attached sequence alignment) that encodes a protein (SEQ ID NO:5) that shares 100% sequence identity to SEQ ID NO:3 of the instant application. The isolated nucleic acid taught by Lal et al. comprises a sequence that is more than 100 nucleotides in length and is identical to at least 100 bases of SEQ ID NO:4 and would also hybridize to the nucleic acid of SEQ ID NO:4 of the instant application. Lal et al. also teach vectors comprising the polynucleotide operably linked to a promoter (i.e., a genetic construct), and a host cell comprising the vector (See pages 14-16 [0151] – [0159]). Lastly, Lal et al. teach polynucleotides of SEQ ID NO:26 include RNA equivalents (See pg 3 [0023]), antisense (See pg 20 [0195]), and mRNA (See pg 24 [0229]). Thus, claims 2-4 and 14-17 are anticipated by Lal et al. It is noted that Lal et al. first disclose the isolated polynucleotides (SEQ ID NO:26) as well as vectors and host cells comprising the same as recited in the claims, in U.S. Provisional Application 60/188,384 filed 10 March 2000 (See SEQ ID NO:4), which pre-dates the filing date of the document Applicant has relied upon to establish priority to an earlier filing

date.

33. Claim 4 is rejected under 35 U.S.C. 102(b) as being anticipated by the PRIME-IT™ Random Primer Labeling Kit found in the Stratagene 1991 Product Catalog. Claim 4 is drawn to nucleic acid sequences that hybridize to a portion of SEQ ID NO:4. There are no size limitations or functional limitations on the sequences. The PRIME-IT™ Random Primer Labeling Kit contains random 9-mer primers that can hybridize to any sequence. Thus, claim 4 is anticipated by the PRIME-IT™ Random Primer Labeling Kit.

Summary

34. No claim is allowed.

Allowable Subject Matter

35. Claims 1 and 12-13 are objected to for encompassing non-elected inventions, e.g., SEQ ID NO:9 and SEQ ID NO:13, but would be allowable if rewritten to omit the non-elected inventions.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Jon M. Lockard, Ph.D.** whose telephone number is **(571) 272-2717**. The examiner can normally be reached on Monday through Friday, 8:00 AM to 6:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Brenda Brumback**, can be reached on **(571) 272-0961**.

The fax number for the organization where this application or proceeding is assigned is **571-273-8300**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see **http://pair-direct.uspto.gov**. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at **866-217-9197** (toll-free).

JML
June 8, 2005

Bridget E. Bunner
patent examiner

Sequence Alignments

```
Qy       2281 AATGCAAAAAAAAAAAAAAAAAAAA 2306
             ||||||||||||||||||||||||||
Db       2281 AATGCAAAAAAAAAAAAAAAAAAAA 2306
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RESULT 2
US-10-220-382-26
; Sequence 26, Application US/10220382
; Publication No. US20030119111A1
; GENERAL INFORMATION:
; APPLICANT: INCYTE GENOMICS, INC.
; APPLICANT: LAL, Preeti
; APPLICANT: TANG, Y. Tom
; APPLICANT: PATTERSON, Chandra
; APPLICANT: YAO, Monique G.
; APPLICANT: SHIH, Leo L.
; APPLICANT: TRIBOULEY, Catherine
; APPLICANT: LU, Dyung Aina M.
; APPLICANT: YUE, Henry
; APPLICANT: KHAN, Farrah A.
; APPLICANT: POLICKY, Jennifer L.
; APPLICANT: AU-YOUNG, Janice
; APPLICANT: YANG, Junming
; APPLICANT: HARLAND, Lee
; APPLICANT: WALSH, Roderick T.
; APPLICANT: LO, Terence P.
; APPLICANT: BOROWSKY, Mark L.
; TITLE OF INVENTION: G-PROTEIN COUPLED RECEPTORS
; FILE REFERENCE: PI-0044 PCT
; CURRENT APPLICATION NUMBER: US/10/220,382
; CURRENT FILING DATE: 2001-03-01
; PRIOR APPLICATION NUMBER: 60/186,854; 60/188,384; 60/190,453; 60/190,730
; PRIOR FILING DATE: 2000-03-03; 2000-03-10; 2000-03-17; 2000-03-20
; NUMBER OF SEQ ID NOS: 42
; SOFTWARE: PERL Program
; SEQ ID NO 26
; LENGTH: 2147
; TYPE: DNA
; ORGANISM: Homo sapiens
; FEATURE:
; NAME/KEY: misc_feature
; OTHER INFORMATION: Incyte ID No. US20030119111A1 7066050CB1
US-10-220-382-26

Query Match 88.6%; Score 2069.2; DB 15; Length 2147;
Best Local Similarity 99.9%; Pred. No. 0;
Matches 2071; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

```
Qy          1 GCGCGGCCCATGGAGTCGGGGCTGCTGCGGCCGGCGCCGGTGAGCGAGGTCATCGTCCTG 60
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db         59 GCGCGGCCCATGGAGTCGGGGCTGCTGCGGCCGGCGCCGGTGAGCGAGGTCATCGTCCTG 118

Qy         61 CATTACAACTACACCGGCAAGCTCCGCGGTGCGCGCTACCAGCCGGGTGCCGGCCTGCGC 120
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        119 CATTACAACTACACCGGCAAGCTCCGCGGTGCGCGCTACCAGCCGGGTGCCGGCCTGCGC 178

Qy        121 GCCGACGCCGTGGTGTGCCTGGCGGTGTGCGCCTTCATCGTGCTAGAGAATCTAGCCGTG 180
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        179 GCCGACGCCGTGGTGTGCCTGGCGGTGTGCGCCTTCATCGTGCTAGAGAATCTAGCCGTG 238

Qy        181 TTGTTGGTGCTCGGACGCCACCCGCGCTTCCACGCTCCCATGTTCCTGCTCCTGGGCAGC 240
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        239 TTGTTGGTGCTCGGACGCCACCCGCGCTTCCACGCTCCCATGTTCCTGCTCCTGGGCAGC 298

Qy        241 CTCACGTTGTCGGATCTGCTGGCAGGCGCCGCCTACGCCGCCAACATCCTACTGTCGGGG 300
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        299 CTCACGTTGTCGGATCTGCTGGCAGGCGCCGCCTACGCCGCCAACATCCTACTGTCGGGG 358

Qy        301 CCGCTCACGCTGAAACTGTCCCCCGCGCTCTGGTTCGCACGGGAGGGAGGCGTCTTCGTG 360
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        359 CCGCTCACGCTGAAACTGTCCCCCGCGCTCTGGTTCGCACGGGAGGGAGGCGTCTTCGTG 418

Qy        361 GCACTCACTGCGTCCGTGCTGAGCCTCCTGGCCATCGCGCTGGAGCGCAGCCTCACCATG 420
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        419 GCACTCACTGCGTCCGTGCTGAGCCTCCTGGCCATCGCGCTGGAGCGCAGCCTCACCATG 478

Qy        421 GCGCGCAGGGGGCCCGCGCCCGTCTCCAGTCGGGGGCGCACGCTGGCGATGGCAGCCGCG 480
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        479 GCGCGCAGGGGGCCCGCGCCCGTCTCCAGTCGGGGGCGCACGCTGGCGATGGCAGCCGCG 538

Qy        481 GCCTGGGGCGTGTCGCTGCTCCTCGGGCTCCTGCCAGCGCTGGGCTGGAATTGCCTGGGT 540
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        539 GCCTGGGGCGTGTCGCTGCTCCTCGGGCTCCTGCCAGCGCTGGGCTGGAATTGCCTGGGT 598

Qy        541 CGCCTGGACGCTTGCTCCACTGTCTTGCCGCTCTACGCCAAGGCCTACGTGCTCTTCTGC 600
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        599 CGCCTGGACGCTTGCTCCACTGTCTTGCCGCTCTACGCCAAGGCCTACGTGCTCTTCTGC 658

Qy        601 GTGCTCGCCTTCGTGGGCATCCTGGCCGCGATCTGTGCACTCTACGCGCGCATCTACTGC 660
              ||||||||||||||||||||||||||| ||||||||||||||||||||||||||||||||
Db        659 GTGCTCGCCTTCGTGGGCATCCTGGCCGCTATCTGTGCACTCTACGCGCGCATCTACTGC 718

Qy        661 CAGGTACGCGCCAACGCGCGGCGCCTGCCGGCACGGCCCGGGACTGCGGGGACCACCTCG 720
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        719 CAGGTACGCGCCAACGCGCGGCGCCTGCCGGCACGGCCCGGGACTGCGGGGACCACCTCG 778

Qy        721 ACCCGGGCGCGTCGCAAGCCGCGCTCGCTGGCCTTGCTGCGCACGCTCAGCGTGGTGCTC 780
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        779 ACCCGGGCGCGTCGCAAGCCGCGCTCGCTGGCCTTGCTGCGCACGCTCAGCGTGGTGCTC 838

Qy        781 CTGGCCTTTGTGGCATGTTGGGGCCCCCTCTTCCTGCTGCTGTTGCTCGACGTGGCGTGC 840
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        839 CTGGCCTTTGTGGCATGTTGGGGCCCCCTCTTCCTGCTGCTGTTGCTCGACGTGGCGTGC 898

Qy        841 CCGGCGCGCACCTGTCCTGTACTCCTGCAGGCCGATCCCTTCCTGGGACTGGCCATGGCC 900
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        899 CCGGCGCGCACCTGTCCTGTACTCCTGCAGGCCGATCCCTTCCTGGGACTGGCCATGGCC 958

Qy        901 AACTCACTTCTGAACCCCATCATCTACACGCTCACCAACCGCGACCTGCGCCACGCGCTC 960
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        959 AACTCACTTCTGAACCCCATCATCTACACGCTCACCAACCGCGACCTGCGCCACGCGCTC 1018

Qy        961 CTGCGCCTGGTCTGCTGCGGACGCCACTCCTGCGGCAGAGACCCGAGTGGCTCCCAGCAG 1020
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1019 CTGCGCCTGGTCTGCTGCGGACGCCACTCCTGCGGCAGAGACCCGAGTGGCTCCCAGCAG 1078

Qy       1021 TCGGCGAGCGCGGCTGAGGCTTCCGGGGGCCTGCGCCGCTGCCTGCCCCCGGGCCTTGAT 1080
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1079 TCGGCGAGCGCGGCTGAGGCTTCCGGGGGCCTGCGCCGCTGCCTGCCCCCGGGCCTTGAT 1138

Qy       1081 GGGAGCTTCAGCGGCTCGGAGCGCTCATCGCCCCAGCGCGACGGGCTGGACACCAGCGGC 1140
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1139 GGGAGCTTCAGCGGCTCGGAGCGCTCATCGCCCCAGCGCGACGGGCTGGACACCAGCGGC 1198

Qy       1141 TCCACAGGCAGCCCCGGTGCACCCACAGCCGCCCGGACTCTGGTATCAGAACCGGCTGCA 1200
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1199 TCCACAGGCAGCCCCGGTGCACCCACAGCCGCCCGGACTCTGGTATCAGAACCGGCTGCA 1258

Qy       1201 GACTGACACCCTCGGCCCACGACTGTCTTCCCAAGTTTTACAGACTTGTTCTTTTTACAT 1260
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1259 GACTGACACCCTCGGCCCACGACTGTCTTCCCAAGTTTTACAGACTTGTTCTTTTTACAT 1318

Qy       1261 AAAGGAATTTGTAGGAAATGCAGCCAAAGGTGCAGTCGGAAAAGATGCAGGGGAAATGTA 1320
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1319 AAAGGAATTTGTAGGAAATGCAGCCAAAGGTGCAGTCGGAAAAGATGCAGGGGAAATGTA 1378

Qy       1321 TTTATGCAGCGACACCCCACAATGTGAACAAACAGACAAAAAATCTGTGCCCTCGTGGAA 1380
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1379 TTTATGCAGCGACACCCCACAATGTGAACAAACAGACAAAAAATCTGTGCCCTCGTGGAA 1438

Qy       1381 TTGACGTTCTGCTTGGGAACACAGAAAAGAACTCGGTGATGAAATAATGGAGATGATTCC 1440
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1439 TTGACGTTCTGCTTGGGAACACAGAAAAGAACTCGGTGATGAAATAATGGAGATGATTCC 1498

Qy       1441 AGTGACAAACGACAGAGATGGTGATGGTGGTCAGGGAAGACCTCTCTGCAGAGGTAGTGA 1500
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Db       1499 AGTGACAAACGACAGAGATGGTGATGGTGGTCAGGGAAGACCTCTCTGCAGAGGTAGTGA 1558

Qy       1501 CTTGTGATGTGAGCTGAGACCTCTGTCCTGGGAAGACCAAAAGAAAAGCATTTCAGGATG 1560

Db       1559 CTTGTGATGTGAGCTGAGACCTCTGTCCTGGGAAGACCAAAAGAAAAGCATTTCAGGATG 1618

Qy       1561 AGGGAATGGCATGCGCAAAGGCCCTGAGGCTGAAATGTGCCCATGTGTTCTAAGAAATGC 1620

Db       1619 AGGGAATGGCATGCGCAAAGGCCCTGAGGCTGAAATGTGCCCATGTGTTCTAAGAAATGC 1678

Qy       1621 AGCGATGCTGGTGTGCCTGGAGCAGGGACGGAGGGGGAGAATGGGAGGAGACAAGGAGCT 1680

Db       1679 AGCGATGCTGGTGTGCCTGGAGCAGGGACGGAGGGGGAGAATGGGAGGAGACAAGGAGCT 1738

Qy       1681 GAAGGAGTAGTTCCCGAAGGACCTTGTGGGTGATATAGAGGACTTCGCTTTTGCTCTGAG 1740

Db       1739 GAAGGAGTAGTTCCCGAAGGACCTTGTGGGTGATATAGAGGACTTCGCTTTTGCTCTGAG 1798

Qy       1741 TGAGGTGGGAGCCATAGAAGCTTCTAAGCAGAAGAGGGACTTGCCCTAATTCAGGTGATC 1800

Db       1799 TGAGGTGGGAGCCATAGAAGCTTCTAAGCAGAAGAGGGACTTGCCCTAATTCAGGTGATC 1858

Qy       1801 ACAGGTGTCTTGTGGCCTCCATGGGAGGTTGAAAACCACAGAAGGTGAAGGGGGGCTGCA 1860

Db       1859 ACAGGTGTCTTGTGGCCTCCATGGGAGGTTGAAAACCAGAGAAGGTGAAGGGGGGCTGCA 1918

Qy       1861 CTGAGCCACAGGAACAATGATGGAGATTCCAGCTAAGCCCAGACCCCGTGGATTCTAGAT 1920

Db       1919 CTGAGCCACAGGAACAATGATGGAGATTCCAGCTAAGCCCAGACCCCGTGGATTCTAGAT 1978

Qy       1921 AGATTTTAGAGGCAGCAGACAGAATTACTGAGGAATTGAGTGTAAGAGTGGAATAAAGTT 1980

Db       1979 AGATTTTAGAGGCAGCAGACAGAATTACTGAGGAATTGAGTGTAAGAGTGGAATAAAGTT 2038

Qy       1981 ATCAAGGACAATGCCAAGGGTGGGGCACCCCCAAATTTGACTTTGGGAGACTCAGCCAAA 2040

Db       2039 ATCAAGGACAATGCCAAGGGTGGGGCACCCCCAAATTTGACTCTGGGAGACTCAGCCAAA 2098

Qy       2041 TCCTATCTGGTAATAAAATTTCTTTTTTATTTTT 2074

Db       2099 TCCTATCTGGTAATAAAATTTCTTTTTTATTTTT 2132
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RESULT 3
US-10-425-114-22419
; Sequence 22419, Application US/10425114
; Publication No. US20040034888A1
; GENERAL INFORMATION:
; APPLICANT: Liu, Jingdong
; APPLICANT: Zhou, Yihua
; APPLICANT: Kovalic, David K.
; APPLICANT: Screen, Steven E
; APPLICANT: Tabaska, Jack E
; APPLICANT: Cao, Yongwei
; TITLE OF INVENTION: Nucleic Acid Molecules and Other Molecules Associated With
; TITLE OF INVENTION: Plants and Uses Thereof for Plant Improvement
; FILE REFERENCE: 38-21(53313)B
; CURRENT APPLICATION NUMBER: US/10/425,114
; CURRENT FILING DATE: 2003-04-28
; NUMBER OF SEQ ID NOS: 73128
; SEQ ID NO 22419
; LENGTH: 2119
; TYPE: DNA
; ORGANISM: Homo sapiens
; FEATURE:
; OTHER INFORMATION: Clone ID: LIB3547-170-A5_FLI
US-10-425-114-22419

Query Match 88.0%; Score 2055.2; DB 17; Length 2119;
Best Local Similarity 99.7%; Pred. No. 0;
Matches 2070; Conservative 0; Mismatches 3; Indels 3; Gaps 1;

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Qy          1 GCGCGGCCCATGGAGTCGGGGCTGCTGCGGCCGGCGCCGGTGAGCGAGGTCATCGTCCTG 60

Db         47 GCGCGGCCCATGGAGTCGGGGCTGCTGCGGCCGGCGCCGGTGAGCGAGGTCATCGTCCTG 106

Qy         61 CATTACAACTACACCGGCAAGCTCCGCGGTGCGCGCTACCAGCCGGGTGCCGGCCTGCGC 120

Db        107 CATTACAACTACACCGGCAAGCTCCGCGGTGCGCGCTACCAGCCGGGTGCCGGCCTGCGC 166

Qy        121 GCCGACGCCGTGGTGTGCCTGGCGGTGTGCGCCTTCATCGTGCTAGAGAATCTAGCCGTG 180

Db        167 GCCGACGCCGTGGTGTGCCTGGCGGTGTGCGCCTTCATCGTGCTAGAGAATCTAGCCGTG 226

Qy        181 TTGTTGGTGCTCGGACGCCACCCGCGCTTCCACGCTCCCATGTTCCTGCTCCTGGGCAGC 240

Db        227 TTGTTGGTGCTCGGACGCCACCCGCGCTTCCACGCTCCCATGTTCCTGCTCCTGGGCAGC 286

Qy        241 CTCACGTTGTCGGATCTGCTGGCAGGCGCCGCCTACGCCGCCAACATCCTACTGTCGGGG 300

Db        287 CTCACGTTGTCGGATCTGCTGGCAGGCGCCGCCTACGCCGCCAACATCCTACTGTCGGGG 346

Qy        301 CCGCTCACGCTGAAACTGTCCCCCGCGCTCTGGTTCGCACGGGAGGGAGGCGTCTTCGTG 360

Db        347 CCGCTCACGCTGAAACTGTCCCCCGCGCTCTGGTTCGCACGGGAGGGAGGCGTCTTCGTG 406

Qy        361 GCACTCACTGCGTCCGTGCTGAGCCTCCTGGCCATCGCGCTGGAGCGCAGCCTCACCATG 420

Db        407 GCACTCACTGCGTCCGTGCTGAGCCTCCTGGCCATCGCGCTGGAGCGCAGCCTCACCATG 466

Qy        421 GCGCGCAGGGGGCCCGCGCCCGTCTCCAGTCGGGGGCGCACGCTGGCGATGGCAGCCGCG 480

Db        467 GCGCGCAGGGGGCCCGCGCCCGTCTCCAGTCGGGGGCGCACGCTGGCGATGGCAGCCGCG 526

Qy        481 GCCTGGGGCGTGTCGCTGCTCCTCGGGCTCCTGCCAGCGCTGGGCTGGAATTGCCTGGGT 540

Db        527 GCCTGGGGCGTGTCGCTGCTCCTCGGGCTCCTGCCAGCGCTGGGCTGGAATTGCCTGGGT 586

Qy        541 CGCCTGGACGCTTGCTCCACTGTCTTGCCGCTCTACGCCAAGGCCTACGTGCTCTTCTGC 600

Db        587 CGCCTGGACGCTTGCTCCACTGTCTTGCCGCTCTACGCCAAGGCCTACGTGCTCTTCTGC 646

Qy        601 GTGCTCGCCTTCGTGGGCATCCTGGCCGCGATCTGTGCACTCTACGCGCGCATCTACTGC 660

Db        647 GTGCTCGCCTTCGTGGGCATCCTGGCCGCGATCTGTGCACTCTACGCGCGCATCTACTGC 706

Qy        661 CAGGTACGCGCCAACGCGCGGCGCCTGCCGGCACGGCCCGGGACTGCGGGGACCACCTCG 720

Db        707 CAGGTACGCGCCAACGCGCGGCGCCTGCCGGCACGGCCCGGGACTGCGGGGACCACCTCG 766

Qy        721 ACCCGGGCGCGTCGCAAGCCGCGCTCGCTGGCCTTGCTGCGCACGCTCAGCGTGGTGCTC 780

Db        767 ACCCGGGCGCGTCGCAAGCCGCGCTCGCTGGCCTTGCTGCGCACGCTCAGCGTGGTGCTC 826

Qy        781 CTGGCCTTTGTGGCATGTTGGGGCCCCCTCTTCCTGCTGCTGTTGCTCGACGTGGCGTGC 840

Db        827 CTGGCCTTTGTGGCATGTTGGGGCCCCCTCTTCCTGCTGCTGTTGCTCGACGTGGCGTGC 886

Qy        841 CCGGCGCGCACCTGTCCTGTACTCCTGCAGGCCGATCCCTTCCTGGGACTGGCCATGGCC 900

Db        887 CCGGCGCGCACCTGTCCTGTACTCCTGCAGGCCGATCCCTTCCTGGGACTGGCCATGGCC 946

Qy        901 AACTCACTTCTGAACCCCATCATCTACACGCTCACCAACCGCGACCTGCGCCACGCGCTC 960

Db        947 AACTCACTTCTGAACCCCATCATCTACACGCTCACCAACCGCGACCTGCGCCACGCGCTC 1006

Qy        961 CTGCGCCTGGTCTGCTGCGGACGCCACTCCTGCGGCAGAGACCCGAGTGGCTCCCAGCAG 1020

Db       1007 CTGCGCCTGGTCTGCTGCGGACGCCACTCCTGCGGCAGAGACCCGAGTGGCTCCCAGCAG 1066

Qy       1021 TCGGCGAGCGCGGCTGAGGCTTCCGGGGGCCTGCGCCGCTGCCTGCCCCCGGGCCTTGAT 1080

Db       1067 TCGGCGAGCGCGGCTGAGGCTTCCGGGGGCCTGCGCCGCTGCCTGCCCCCGGGCCTTGAT 1126

Qy       1081 GGGAGCTTCAGCGGCTCGGAGCGCTCATCGCCCCAGCGCGACGGGCTGGACACCAGCGGC 1140
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Qy         61 LGRHPRFHAPMFLLLGSLTLSDLLAGAAYAANILLSGPLTLKLSPALWFAREGGVFVALT 120
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db         61 LGRHPRFHAPMFLLLGSLTLSDLLAGAAYAANILLSGPLTLKLSPALWFAREGGVFVALT 120

Qy        121 ASVLSLLAIALERSLTMARRGPAPVSSRGRTLAMAAAAWGVSLLLGLLPALGWNCLGRLD 180
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        121 ASVLSLLAIALERSLTMARRGPAPVSSRGRTLAMAAAAWGVSLLLGLLPALGWNCLGRLD 180

Qy        181 ACSTVLPLYAKAYVLFCVLAFVGILAAICALYARIYCQVRANARRLPARPGTAGTTSTRA 240
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        181 ACSTVLPLYAKAYVLFCVLAFVGILAAICALYARIYCQVRANARRLPARPGTAGTTSTRA 240

Qy        241 RRKPRSLALLRTLSVVLLAFVACWGPLFLLLLLDVACPARTCPVLLQADPPFLGLAMANSL 300
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        241 RRKPRSLALLRTLSVVLLAFVACWGPLFLLLLLDVACPARTCPVLLQADPPFLGLAMANSL 300

Qy        301 LNPIIYTLTNRDLRHALLRLVCCGRHSCGRDPSGSQQSASAAEASGGLRRCLPPGLDGSF 360
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        301 LNPIIYTLTNRDLRHALLRLVCCGRHSCGRDPSGSQQSASAAEASGGLRRCLPPGLDGSF 360

Qy        361 SGSERSSPQRDGLDTSGSTGSPGAPTAARTLVSEPAAD 398
              |||||||||||||||||||||||||||||||||||||||
Db        361 SGSERSSPQRDGLDTSGSTGSPGAPTAARTLVSEPAAD 398
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RESULT 7
US-10-225-567A-563
; Sequence 563, Application US/10225567A
; Publication No. US20030113798A1
; GENERAL INFORMATION:
; APPLICANT: LifeSpan Biosciences
; APPLICANT: Brown, Joseph P.
; APPLICANT: Burmer, Glenna C.
; APPLICANT: Roush, Christine L.
; TITLE OF INVENTION: ANTIGENIC PEPTIDES AND ANTIBODIES FOR G PROTEIN-COUPLED RECEPTORS
; FILE REFERENCE: 1920-4-4
; CURRENT APPLICATION NUMBER: US/10/225,567A
; CURRENT FILING DATE: 2001-12-19
; PRIOR APPLICATION NUMBER: 60/257,144
; PRIOR FILING DATE: 2000-12-19
; NUMBER OF SEQ ID NOS: 2292
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 563
; LENGTH: 398
; TYPE: PRT
; ORGANISM: Homo sapiens
US-10-225-567A-563

Query Match 100.0%; Score 2019; DB 14; Length 398;
Best Local Similarity 100.0%; Pred. No. 1e-162;
Matches 398; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

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Qy          1 MESGLLRPAPVSEVIVLHYNYTGKLRGARYQPGAGLRADAVVCLAVCAFIVLENLAVLLV 60
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db          1 MESGLLRPAPVSEVIVLHYNYTGKLRGARYQPGAGLRADAVVCLAVCAFIVLENLAVLLV 60

Qy         61 LGRHPRFHAPMFLLLGSLTLSDLLAGAAYAANILLSGPLTLKLSPALWFAREGGVFVALT 120
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db         61 LGRHPRFHAPMFLLLGSLTLSDLLAGAAYAANILLSGPLTLKLSPALWFAREGGVFVALT 120

Qy        121 ASVLSLLAIALERSLTMARRGPAPVSSRGRTLAMAAAAWGVSLLLGLLPALGWNCLGRLD 180
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        121 ASVLSLLAIALERSLTMARRGPAPVSSRGRTLAMAAAAWGVSLLLGLLPALGWNCLGRLD 180

Qy        181 ACSTVLPLYAKAYVLFCVLAFVGILAAICALYARIYCQVRANARRLPARPGTAGTTSTRA 240
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        181 ACSTVLPLYAKAYVLFCVLAFVGILAAICALYARIYCQVRANARRLPARPGTAGTTSTRA 240

Qy        241 RRKPRSLALLRTLSVVLLAFVACWGPLFLLLLLDVACPARTCPVLLQADPPFLGLAMANSL 300
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        241 RRKPRSLALLRTLSVVLLAFVACWGPLFLLLLLDVACPARTCPVLLQADPPFLGLAMANSL 300

Qy        301 LNPIIYTLTNRDLRHALLRLVCCGRHSCGRDPSGSQQSASAAEASGGLRRCLPPGLDGSF 360
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        301 LNPIIYTLTNRDLRHALLRLVCCGRHSCGRDPSGSQQSASAAEASGGLRRCLPPGLDGSF 360

Qy        361 SGSERSSPQRDGLDTSGSTGSPGAPTAARTLVSEPAAD 398
              |||||||||||||||||||||||||||||||||||||||
Db        361 SGSERSSPQRDGLDTSGSTGSPGAPTAARTLVSEPAAD 398
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RESULT 8
US-10-220-382-5
; Sequence 5, Application US/10220382
; Publication No. US20030119111A1
; GENERAL INFORMATION:
; APPLICANT: INCYTE GENOMICS, INC.
; APPLICANT: LAL, Preeti
; APPLICANT: TANG, Y. Tom
; APPLICANT: PATTERSON, Chandra
; APPLICANT: YAO, Monique G.
; APPLICANT: SHIH, Leo L.
; APPLICANT: TRIBOULEY, Catherine
; APPLICANT: LU, Dyung Aina M.
; APPLICANT: YUE, Henry
; APPLICANT: KHAN, Farrah A.
; APPLICANT: POLICKY, Jennifer L.
; APPLICANT: AU-YOUNG, Janice
; APPLICANT: YANG, Junming
; APPLICANT: HARLAND, Lee
; APPLICANT: WALSH, Roderick T.
; APPLICANT: LO, Terence P.
; APPLICANT: BOROWSKY, Mark L.
; TITLE OF INVENTION: G-PROTEIN COUPLED RECEPTORS
; FILE REFERENCE: PI-0044 PCT
; CURRENT APPLICATION NUMBER: US/10/220,382
; CURRENT FILING DATE: 2001-03-01
; PRIOR APPLICATION NUMBER: 60/186,854; 60/188,384; 60/190,453; 60/190,730
; PRIOR FILING DATE: 2000-03-03; 2000-03-10; 2000-03-17; 2000-03-20
; NUMBER OF SEQ ID NOS: 42
; SOFTWARE: PERL Program
; SEQ ID NO 5
; LENGTH: 398
; TYPE: PRT
; ORGANISM: Homo sapiens
; FEATURE:
; NAME/KEY: misc_feature
; OTHER INFORMATION: Incyte ID No. US20030119111A1 7066050CD1
US-10-220-382-5

Query Match 100.0%; Score 2019; DB 14; Length 398;
Best Local Similarity 100.0%; Pred. No. 1e-162;
Matches 398; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

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Qy          1 MESGLLRPAPVSEVIVLHYNYTGKLRGARYQPGAGLRADAVVCLAVCAFIVLENLAVLLV 60
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db          1 MESGLLRPAPVSEVIVLHYNYTGKLRGARYQPGAGLRADAVVCLAVCAFIVLENLAVLLV 60

Qy         61 LGRHPRFHAPMFLLLGSLTLSDLLAGAAYAANILLSGPLTLKLSPALWFAREGGVFVALT 120
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db         61 LGRHPRFHAPMFLLLGSLTLSDLLAGAAYAANILLSGPLTLKLSPALWFAREGGVFVALT 120

Qy        121 ASVLSLLAIALERSLTMARRGPAPVSSRGRTLAMAAAAWGVSLLLGLLPALGWNCLGRLD 180
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        121 ASVLSLLAIALERSLTMARRGPAPVSSRGRTLAMAAAAWGVSLLLGLLPALGWNCLGRLD 180

Qy        181 ACSTVLPLYAKAYVLFCVLAFVGILAAICALYARIYCQVRANARRLPARPGTAGTTSTRA 240
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        181 ACSTVLPLYAKAYVLFCVLAFVGILAAICALYARIYCQVRANARRLPARPGTAGTTSTRA 240

Qy        241 RRKPRSLALLRTLSVVLLAFVACWGPLFLLLLLDVACPARTCPVLLQADPPFLGLAMANSL 300
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        241 RRKPRSLALLRTLSVVLLAFVACWGPLFLLLLLDVACPARTCPVLLQADPPFLGLAMANSL 300

Qy        301 LNPIIYTLTNRDLRHALLRLVCCGRHSCGRDPSGSQQSASAAEASGGLRRCLPPGLDGSF 360
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        301 LNPIIYTLTNRDLRHALLRLVCCGRHSCGRDPSGSQQSASAAEASGGLRRCLPPGLDGSF 360

Qy        361 SGSERSSPQRDGLDTSGSTGSPGAPTAARTLVSEPAAD 398
              |||||||||||||||||||||||||||||||||||||||
Db        361 SGSERSSPQRDGLDTSGSTGSPGAPTAARTLVSEPAAD 398
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```
Db        301 LNPIIYTLTNRDLRHALLRLVCCGRHSCGRDPSGSQQSASAAEASGGLRRCLPPGLDGSF 360

Qy        361 SGSERSSPQRDGLDTSGSTGSPGAPTAARTLVSEPAAD 398
              |||||||||||||||||||||||||||||||||||||||
Db        361 SGSERSSPQRDGLDTSGSTGSPGAPTAARTLVSEPAAD 398


RESULT 9
US-10-421-828-2
; Sequence 2, Application US/10421828
; Publication No. US20030219874A1
; GENERAL INFORMATION:
;  APPLICANT: KOSTENSIS, Eva
;  APPLICANT:  GASSENHUBER, Johann
;  TITLE OF INVENTION: EDG8 RECEPTOR, ITS PREPARATION AND USE
;  FILE REFERENCE: 38005-147
;  CURRENT APPLICATION NUMBER: US/10/421,828
;  CURRENT FILING DATE:  2003-05-08
;  PRIOR APPLICATION NUMBER: EP 116589.3
;  PRIOR FILING DATE: 2000-08-01
;  PRIOR APPLICATION NUMBER: EP 108858.2
;  PRIOR FILING DATE: 2000-04-26
;  NUMBER OF SEQ ID NOS: 9
;  SOFTWARE: PatentIn version 3.1
; SEQ ID NO 2
;   LENGTH: 398
;   TYPE: PRT
;   ORGANISM: Homo sapiens
US-10-421-828-2

  Query Match           100.0%;  Score 2019;  DB 15;  Length 398;
  Best Local Similarity  100.0%;  Pred. No. 1e-162;
  Matches  398;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 MESGLLRPAPVSEVIVLHYNYTGKLRGARYQPGAGLRADAVVCLAVCAFIVLENLAVLLV 60
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Db          1 MESGLLRPAPVSEVIVLHYNYTGKLRGARYQPGAGLRADAVVCLAVCAFIVLENLAVLLV 60

Qy         61 LGRHPRFHAPMFLLLGSLTLSDLLAGAAYAANILLSGPLTLKLSPALWFAREGGVFVALT 120
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Db         61 LGRHPRFHAPMFLLLGSLTLSDLLAGAAYAANILLSGPLTLKLSPALWFAREGGVFVALT 120

Qy        121 ASVLSLLAIALERSLTMARRGPAPVSSRGRTLAMAAAAWGVSLLLGLLPALGWNCLGRLD 180
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Qy        181 ACSTVLPLYAKAYVLFCVLAFVGILAAICALYARIYCQVRANARRLPARPGTAGTTSTRA 240
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Db        181 ACSTVLPLYAKAYVLFCVLAFVGILAAICALYARIYCQVRANARRLPARPGTAGTTSTRA 240

Qy        241 RRKPRSLALLRTLSVVLLAFVACWGPLFLLLLLDVACPARTCPVLLQADPFLGLAMANSL 300
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Db        241 RRKPRSLALLRTLSVVLLAFVACWGPLFLLLLLDVACPARTCPVLLQADPFLGLAMANSL 300

Qy        301 LNPIIYTLTNRDLRHALLRLVCCGRHSCGRDPSGSQQSASAAEASGGLRRCLPPGLDGSF 360
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Qy        361 SGSERSSPQRDGLDTSGSTGSPGAPTAARTLVSEPAAD 398
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Db        361 SGSERSSPQRDGLDTSGSTGSPGAPTAARTLVSEPAAD 398


RESULT 10
US-10-343-650A-24
; Sequence 24, Application US/10343650A
; Publication No. US20040067499A1
; GENERAL INFORMATION:
;  APPLICANT: HAGA, TATSUYA
;  TITLE OF INVENTION: NOVEL G-PROTEIN COUPLED RECEPTOR
;  FILE REFERENCE: 31671-186347
;  CURRENT APPLICATION NUMBER: US/10/343,650A
;  CURRENT FILING DATE:  2003-07-21
;  PRIOR APPLICATION NUMBER: JP 2000/237818
;  PRIOR FILING DATE: 2000-08-04
;  PRIOR APPLICATION NUMBER: JP 2001/34434
;  PRIOR FILING DATE: 2001-02-13
;  NUMBER OF SEQ ID NOS: 694
;  SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 24
;   LENGTH: 398
;   TYPE: PRT
;   ORGANISM: Homo sapiens
US-10-343-650A-24

  Query Match           100.0%;  Score 2019;  DB 15;  Length 398;
  Best Local Similarity  100.0%;  Pred. No. 1e-162;
  Matches  398;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 MESGLLRPAPVSEVIVLHYNYTGKLRGARYQPGAGLRADAVVCLAVCAFIVLENLAVLLV 60
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Db          1 MESGLLRPAPVSEVIVLHYNYTGKLRGARYQPGAGLRADAVVCLAVCAFIVLENLAVLLV 60

Qy         61 LGRHPRFHAPMFLLLGSLTLSDLLAGAAYAANILLSGPLTLKLSPALWFAREGGVFVALT 120
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Db         61 LGRHPRFHAPMFLLLGSLTLSDLLAGAAYAANILLSGPLTLKLSPALWFAREGGVFVALT 120

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Db        121 ASVLSLLAIALERSLTMARRGPAPVSSRGRTLAMAAAAWGVSLLLGLLPALGWNCLGRLD 180

Qy        181 ACSTVLPLYAKAYVLFCVLAFVGILAAICALYARIYCQVRANARRLPARPGTAGTTSTRA 240
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Qy        241 RRKPRSLALLRTLSVVLLAFVACWGPLFLLLLLDVACPARTCPVLLQADPFLGLAMANSL 300
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Qy        301 LNPIIYTLTNRDLRHALLRLVCCGRHSCGRDPSGSQQSASAAEASGGLRRCLPPGLDGSF 360
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Qy        361 SGSERSSPQRDGLDTSGSTGSPGAPTAARTLVSEPAAD 398
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Db        361 SGSERSSPQRDGLDTSGSTGSPGAPTAARTLVSEPAAD 398


RESULT 11
US-10-715-117-9
; Sequence 9, Application US/10715117
; Publication No. US20040171037A1
; GENERAL INFORMATION:
;  APPLICANT: LI, JING
;  APPLICANT:  POWERS, SCOTT
;  APPLICANT:  SIN, WUN CHEY
;  APPLICANT:  YANG, JIANXIN
;  TITLE OF INVENTION: AMPLIFIED GENES INVOLVED IN CANCER
;  FILE REFERENCE: 38002-0062
;  CURRENT APPLICATION NUMBER: US/10/715,117
;  CURRENT FILING DATE:  2003-11-18
;  PRIOR APPLICATION NUMBER: 60/427,202
;  PRIOR FILING DATE: 2002-11-19
;  PRIOR APPLICATION NUMBER: 60/434,434
;  PRIOR FILING DATE: 2002-12-19
;  NUMBER OF SEQ ID NOS: 99
;  SOFTWARE: PatentIn Ver. 3.2
; SEQ ID NO 9
;   LENGTH: 398
;   TYPE: PRT
;   ORGANISM: Homo sapiens
US-10-715-117-9

  Query Match           100.0%;  Score 2019;  DB 16;  Length 398;
  Best Local Similarity  100.0%;  Pred. No. 1e-162;
  Matches  398;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;
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